CURTIS

ON THE

PRESERVATION OF SIGHT,

&c. &c.

Second Edition.

19481/A

CRITICAL NOTICES

OF

MR. CURTIS'S TREATISE

ON

The Physiology and Diseases of the Eye;

WITH

THE MOST APPROVED MODES OF TREATMENT,

&c. &c.

"There is more originality, as well as research, in this volume on the eye, than in Mr. Curtis's work on the ear, although the latter has gone through five editions."—MEDICO-CHIRURGICAL REVIEW.

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"Mr. Curtis, the author of this valuable work on the eye, was for several years employed as a medical officer in the Royal Naval Hospital at Haslar, during the hottest period of the late war, where he had extensive opportunities of improvement in the various branches of his profession. It must not be supposed that this line of practice is entirely new to Mr. Curtis, since, when at Haslar, he saw, perhaps, more of ophthalmia than falls to the lot of many practitioners; and, if we may judge by this treatise, he has not been slow in profiting by his opportunities. The work, which we cordially recommend to our professional readers, closes with some interesting cases, one of which, that of 'an old officer' cured of amaurosis combined with deafness, is a striking proof that Mr. Curtis's practice, though *suavis in modo*, is at the same time *fortis in re.*"—NAVAL AND MILITARY GAZETTE.

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CRITICAL NOTICES.

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" We cordially recommend the work to all classes troubled with affections of the eyes ; but to our own craft it addresses itself with particular emphasis, as well as to barristers, clergymen, and indeed to all those whose employments are literary. The value of the hints and cautions in the chapter on preserving the sight, &c. is so very great, that they should be engraven on the palms of the hands of all such individuals."—NEW MONTHLY MAGAZINE.

" Mr. Curtis has been for many years known to the public as the celebrated aurist. This gentleman has latterly turned his attention to the diseases of the eye. For Mr. Curtis's views we must refer our readers to the book itself, which is a work not only valuable to the professional man, but adapted also to the general reader. It contains much useful information, valuable cautions, and good general advice in respect to the management in health and treatment in disease of that delicate organ, the eye."—COURIER.

" We are indebted to Mr. Curtis, the well-known aurist, and indefatigable surgeon of the Royal Dispensary for Diseases of the Ear, for this very excellent work on a subject that concerns all. There is in this production much to interest and instruct the general reader. We conclude by saying that seldom indeed has the *utile* been more happily joined with the *dulce*, than in this Treatise on the Eye, which to a scientific description of the organ and its principal diseases, adds a vast fund of pleasing information on collateral topics."—COURT JOURNAL.

" Mr. Curtis's Treatise on the Eye may be looked upon in some measure as a manifesto put forward to the world, to justify the author in taking the eyes as well as the ears of his Majesty's lieges under his especial protection. The book is most ably, most scientifically, and most elegantly written. What pleases us particularly is, that Mr. Curtis will hereafter, by this publication, restrain the rash hand of the too confident operator. We are convinced, from our own feelings and experience, which are to us better than a thousand books, that Mr. Curtis is right in tracing the origin of almost all the nervous disorders that affect both eye and ear to the great nerval ganglion, near the region of the stomach. We think that we have read almost every treatise upon the eye and the ear ; and we unhesitatingly pronounce this under our notice to be by far the very best. We earnestly entreat every one who values his sight, whether that sight be good or bad, to become acquainted with the contents of this book. Mr. Curtis has made the great European community hold his name in respect ; and we are convinced that, in return, the world at large will record him as one of its benefactors."—METROPOLITAN MAGAZINE.

" On the whole, as a treatise upon the eye, we are inclined to think that Mr. Curtis will be found to have performed his task with acumen and credit to himself, and that his book may not be neglected as a professional manual."—LADY'S MAGAZINE.

" Mr. Curtis's labours as an aurist have been long familiar to the public. His works on the diseases of the ear, and his peculiar views with reference to the mode of treating those diseases, have attained no common popularity. We cordially recommend all who have eyes to preserve, or sight enough to read with, to devote an hour to this treatise of Mr. Curtis's."—TRUE SUN.

" This work displays throughout much learning and research ; and the subject is enriched with curious facts and apt quotations from the best ancient and modern writers. We hesitate not to affirm that this treatise will give Mr. Curtis additional claims to public gratitude, and will prove particularly acceptable to those in whom the organ of vision is either defective or diseased."—BELL'S WEEKLY MESSENGER.

" Mr. Curtis is well known as an aurist, and a successful one. He has of late years entered upon the study of vision, and has given us the result of his experience in a fair, honest, and candid manner. A very beautiful engraving forms the frontispiece, exhibiting the connexion of the *portio dura* of the seventh pair of nerves with the temporal branch of the superior maxillary. The work is one that must give satisfaction to the medical reader, for it is a clear and instructive exposition of the anatomy and pathology of this most delicate of all organs of the body."—SUNDAY TIMES.

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OBSERVATIONS
ON THE
PRESERVATION OF SIGHT,
AND ON
The Choice, Use, and Abuse
OF
SPECTACLES, READING-GLASSES, &c.

VIDERE EST OPERÆ PRETIUM.

SECOND EDITION.

BY
JOHN HARRISON CURTIS, Esq. M.R.I.
OCULIST AND AURIST.

LONDON:
PUBLISHED BY H. RENSHAW, 356 STRAND.

1835.

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PRINTED BY ROBSON, LEVEY, AND FRANKLYN,
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PREFACE.

THE subject of this little work (of which four thousand copies have been sold in a short time) is admitted by all to be of great importance, though almost universally neglected; which seems to verify the assertion of Milton, that none can fully appreciate the blessing of sight but those who have been deprived of it.

What chiefly induced me to this publication (which consists of Chapter V. of my Treatise on the Eye, with some additional notes,) was the hope that it might in this form probably be read by, and prove beneficial to, many who could not be induced to peruse the larger work. The Germans have been my example in this respect: of late years their most celebrated authors have been in the habit of publishing *Abkürzungen*, as well as select portions, of their more elaborate productions; which has been highly instrumental in diffusing a love of literature and science among the people of that enlightened country.

Though so much has been written on the Eye, we are still far from an accurate knowledge of its pathology: it seems as if the right method had hitherto seldom been pursued by those who have treated this subject—as if the anatomical structure of the organ had not been properly understood. Such need no longer be the case: for I have, in addition to my Map and Chart of the Ear (the nerves of these two organs being so intimately connected), lately brought out a Map of the Anatomy of the Eye, on a large scale, for the use of medical students and the profession generally; in which I have inserted the latest discoveries of physiologists—viz. the membrane of the pigmentum nigrum and the membrane of Jacob, shewing the hexagonal form of the one, and the circular depressions of the other; besides giving the central artery of the retina. And, as a companion to this Map, I have just completed a Synoptical Chart of the Diseases of the Eye, exhibiting, at one view, their order, seat, symptoms, causes, and treatment. Medical men will now have as little plea for being ignorant of the structure and diseases of the Eye, as they have for being unacquainted with those of the Ear; full and accurate information on both these points being within the reach of all.

Perhaps few subjects are less understood by professional men than Acoustics and Optics; yet some knowledge of these sciences is indispensable to the successful treatment of diseases of the Ear and Eye, as well as to enable the practitioner to judge when, and what kind of, artificial assistance ought to be rendered to those organs in cases of incurable disease or structural defect.*

During the last two or three centuries very little progress has been made in the cure of diseases of the eye, though the modes of treatment have been various enough. Herbs were at an early period almost solely employed; they lost ground, however, and were followed by minerals, which, after being tried for a time, were supplanted by the terrific knife! (Terrific, not on account of the momentary, though acute, pain it produces; but on account of the alarming consequences which frequently ensue,—such as delirium, sickness, and convulsions, often terminating in death.) The tables seem again to be turning; and we shall probably, in the course of a few years, revert to herbs. "There is," says Solomon, "nothing new under the sun: the thing which hath been done is that which shall be done again."

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* "The proper selection of glasses for imperfect vision is a point of much deeper importance than is generally believed. An oculist who is acquainted only with the diseases of the human eye, without possessing any knowledge of it as an optical instrument, is often led professionally to recommend glasses when they ought not to be used, and to fix on focal lengths entirely unfit for the purpose to which they are applied." — SIR DAVID BREWSTER *on Spectacles.*

I have only to add, that it has been my aim to furnish such information as may enable all to preserve their sight unimpaired to old age—to enumerate some of the most frequent causes of injury to the Eye, and to point out how they may be avoided or counteracted—and, in fine, to lay down a few plain rules for the choice and use of spectacles.

Hoping that my readers may be benefited by my advice, and that it may conduce to their comfort, by shewing them how their sight may be retained in its vigour to a late period of life, I leave my suggestions to their candid consideration.

JOHN HARRISON CURTIS.

2 *Soho Square.*

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ON THE

PRESERVATION OF SIGHT,

AND ON THE

Choice, Use, and Abuse of Spectacles,

&c. &c.

BEING CHAP. V. OF "A TREATISE ON THE EYE."

In this chapter I purpose to give, in plain and easily intelligible language, some advice on the care necessary to be taken of the eyes—on the means of restoring their healthy action when impaired by over-exertion; and to offer some remarks on the choice, use, and abuse of spectacles.

In proportion to the expansion of the pupil of the eye is the sensibility of the organ: the mean diameter of the pupil, though varying from one to two tenths of an inch, in proportion to the brightness of objects, is reckoned to be commonly about one tenth of an inch.

When the light is too strong, or the object too bright, the pupil contracts, that it may intercept the excess of light, by which the eye would otherwise be distressed; on the contrary, when the light is faint, the pupil expands, in order that a larger portion of it may be admitted by the eye, and thus a more powerful impression be made upon it.*

Sudden changes from comparative darkness to strong light, and *vice versâ*, are highly improper: hence the eyes should be carefully guarded from the full effect of the morning sun on first awaking in summer; and the custom of breakfasting in the lightest room of the house, as is generally done, is certainly weakening to the eyes, which ought to be accustomed by gentle transitions from one degree of light to another, till they can bear the effulgence of the sun's meridian splendour.

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* For a description of the Anatomy of the Eye, vide the Author's Map, exhibiting its external, intermediate, and internal structure, with the nerves and blood-vessels.

Rubbing the eyes on waking is a destructive habit which many people have contracted; and though healthy persons, whose sight is moderately used through the day, may not be sensible of receiving any injury from this custom, yet those whose occupations demand close application of their visual organs for a long-continued space of time, will soon be convinced, by painful experience, of the truth of this remark. Besides the daily injury thus done to the eyes, it sometimes also happens that hairs and other foreign matters are forced into them by their being violently rubbed, which may occasion inflammation, and are frequently very troublesome to dislodge. The inflamed and weak eyes of many persons are likewise in a great measure to be attributed primarily to this most imprudent habit. Should, however, the eyelids be so fixed that a difficulty is felt in opening them, let them be moistened with a little warm milk and water for a few minutes, which, in all cases where the organ is healthy, will be found to answer the purpose in a manner such as they can have no idea of who have never tried this simple remedy.

The use of shades and bandages, on every trifling affection of the eye, is an evil that cannot be too strongly reprobated; for the action of light and air being thus excluded, and the organ rigidly compressed, ophthalmia, and even total blindness, is not infrequently the consequence of that which, being perhaps merely a slight flow of humour, or a little extravasated blood, would have subsided in a few days, if judiciously treated, or even if left to itself.

Bathing the eyes occasionally during the day, as well as on rising, is of much importance to their preservation; and where the organ is healthy, cool spring water should be preferred; but where there is reason to suspect any disease, people cannot be too careful, considering what a very delicate organ the eye is, in having professional advice before they adopt any remedial means. When the roads are dusty, and the weather windy, bathing the eyes is so pleasant, and felt to be so necessary to comfort, that I need say nothing as to its salubrity, to induce its employment by those who have experienced the annoyance arising from dust in walking our streets in summer; but I have to remark, that care must be taken to be perfectly cool before bathing the eyes; for if the face be covered with perspiration, the continued application of cold water may be very dangerous; and even amaurosis has been caused in weak and irritable eyes by this injudicious act.

The frequent location of counting-houses and other places where business is carried on, in close and dark situations, is equally injurious to the sight and to the general health; for the latter is not more affected by confined and ill-ventilated rooms, than the former by dim and obscure ones, into which the light of day can hardly ever be said fairly to penetrate. It is therefore essential to the preservation of the sight in any degree of vigour, that the apartments in which the greatest portion of our time is spent, and in which are carried on those occupations requiring a continued exertion of our eyes, be in a light and cheerful situation;* for whoever neglects this advice will assuredly sooner or later feel its baneful effects. Care should also be taken to avoid rooms whose windows face whitewashed walls, which reflect the rays of the sun so powerfully as in a short time to weaken the strongest sight, causing inflammations, and a train of other evils.

An excess of gilding, or indeed of any shining or white articles, in rooms, ought to be carefully avoided. Dress also, it cannot be doubted, exercises much influence on the visual organs; and many naturally good eyes have been permanently weakened by the apparently innocent custom of wearing a veil, the constant shifting of which affects the sight so prejudicially, in its ceaseless endeavours to adjust itself to the veil's vibrations, that I have known not a few young ladies who have brought on great visual debility by this means alone. Again, tight clothing is manifestly hurtful to the sight—too copious a flow of humours being thereby induced to the head; for it needs not to be demonstrated, that the effective state of the eyes, like every other part of the body, depends on a free circulation of blood, which cannot take place when the body is too straitly laced or buttoned.

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* In Vienna these precautions are wholly disregarded, and employments very straining and trying to the sight are mostly carried on in dark situations, and continued for many hours without intermission.

Rigid cleanliness is a point of much importance, especially as regards the sight of children; for it is well known that though one powerful cause of inflammatory ophthalmia among the children of the poor consists in improper and innutritious diet, yet it cannot be denied that the putrid exhalations of the places in which many of them are doomed to live, have a greater effect in producing diseases of the eyes, than even the deleterious and insufficient food which is the lot of but too many of our miserable fellow-creatures in this great and densely populated metropolis.

Costiveness, and whatever causes much straining at stool, is very injurious to the sight; as, in such cases, the pressure on the intestines impels the blood with an unnatural rapidity to the head.*

A due portion of sleep is as essential to enable the eyes to perform their office comfortably and effectively, as a due portion of rest is to enable the limbs wearied with toil, or the mind with reasoning or other kind of exertion, to resume with alacrity their wonted offices. But sleep too long protracted, on the other hand, is perhaps hardly less destructive of accurate and healthy vision than when taken too sparingly; for as in the one case the organ is enfeebled by unremitting activity, without a proper degree of repose, so in the other case, the eye, from unfrequent or insufficient exercise, becomes torpid and dull, and if inaction be persisted in, is at length unfitted for its functions.

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* Among the common causes of diseases of the eye may be noticed, derangement of the digestive functions—high living—excess in vinous and spirituous liquors—cold—fever—suckling too long protracted—an immoderate use of tobacco and cigars, which often produces debility in young persons—sitting up late at night, and being much excited by card-playing, &c.—straining and fatiguing the eyes by staying several hours in a theatre, as many persons of weak sight do, instead of retiring as soon as they feel any symptoms of dimness of vision, or pain in the eyes—the modern use of dinner-lamps, the purpose of which is much better answered by wax candles;—together with every species of intemperance, which always affects the sight, especially in persons advanced in life.

Consequently, however strong and good our sight may be, it ought always to be moderately and carefully used; and to make it plain what I consider the symptoms of its having been immoderately and carelessly used, I shall throw together a few remarks by which each may judge for himself of the nature of his own case.

If, in order to perceive objects distinctly, we are compelled to place them nearer to the eye than we have been accustomed, *i. e.* if the focus of sight or point of view begins closer to the eye than usual;—if one desires, while employed or otherwise, to fix the eyes steadfastly on some distant object, and they begin involuntarily to emit aqueous humours;—if, during labour or occupation, a painful contraction through the entire orbit of the eye be experienced, but which invariably disappears after a few minutes' rest, or shutting the eyelids now and then; —if the employment be protracted, or require close mental application added to considerable visual tension, and the contraction just noticed is followed by heat in the eyelids, heaviness, difficulty of opening them, &c.;—if in young persons who are fair and sanguine the borders of the eyelids become red, or thicker than when in health, and the blood-vessels turgid;—if, in fine, we perceive motes floating before the eyes (called *muscæ volitantes*),* and objects become so indistinct and ill defined as to oblige us to shut our eyes for a while;—then, in any of these cases, we may be certain that the sight has been over-worked, and that relaxation is absolutely necessary to its recovery of a healthy tone. It is of the utmost consequence that these premonitory symptoms be carefully attended to, otherwise the eyes are in danger of being materially weakened ever after.

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* For an account of the mode of treatment in severe cases of *muscæ volitantes*, vide the Author's Treatise on the Physiology and Diseases of the Eye. *Muscæ volitantes* is a nervous disease, and should be treated medicinally, like nervous deafness. In addition to the remedies prescribed, the patient should attend to his general health, breathe a pure air, take much out-door exercise, live on plain but wholesome food, give rest to the affected organ, and enjoy a little cheerful society: above all things, he should carefully guard against constipation of the bowels. To have the mind tranquil and free from anxiety is likewise of primary importance in this, as in all nervous affections; and every other precaution will generally be found to be of little avail, unless this desideratum be attained: the *mens sana* can seldom exist but *in corpore sano*.

If, however, these symptoms are neglected, others of a more formidable character will not be long in making their appearance; the first of which will be, that objects will seem as if encircled by a faint cloud or mist, the extremities of it being tinged with every variety of colour: after which, objects will begin to dance before the eyes, which are suddenly enveloped in great obscurity, and the objects themselves, at times seemingly raised, at others lowered, not unfrequently topsy-turvy, look as if they were floating at random. Now, though even this stage can hardly be called an actual disorder, being rather, perhaps, a kind of oscillation, as it were, between disease and health, yet, if still unattended to, it may altogether ruin the sight for the rest of life.

A few simple remedies are, indeed, all that are required to restore the healthy functions of the organ in such cases; and these I shall briefly explain.

The first thing to be attended to is a careful regulation of the use of the eyes in regard to length of time, as far as this is practicable: entire disuse of them suddenly would be almost as injurious as a continued straining of them beyond their capabilities. They should, therefore, be variously employed, as much as this can be done, not applying them too long or too intently to the same object, but relieving them by change of scene and diversity of occupation.*

Another means that will be found to be beneficial, and to help the eyes where much relaxation cannot be obtained, consists in shutting them now and then while at work, going into the air, looking out at an open window, especially if there be any trees or verdure within sight:† this interval of rest,

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[*] Children at school should not be kept too long engaged in the same kind of tasks, especially in such as fatigue the eyes.

[†] Fresh air and change of scene have a wonderful effect in relieving the eyes when overfatigued, and in restoring their power. A friend of mine, who is busily employed in the city several hours daily, informs me, that, though

though only of a few minutes' continuance, will greatly relieve the eyes, and enable them to resume their employment with comparative pleasure.

A third caution is, that those who are conscious from experience that their sight has been weakened by severe and protracted exercise, or from any other cause, should carefully avoid immediately on rising all attention to minute objects, or such business or study as requires close application of the visual faculty; and the less it is taxed for a while after eating, or by candle-light, the better.

The fourth means I have already recom-

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obliged to wear glasses while at business, after leaving town for a few days he is able to read with ease without them; and this he rightly attributes to the beneficial influence which the change of air and scene has upon his visual organs. I may add, that one of the chief remedial means in ophthalmia is fresh air; and the reader may see, in my Treatise on the Eye, pp. 80, 81, two instances recorded (one of the crew of a slave-ship, the other of a boys' school in Yorkshire,) in which purulent ophthalmia broke out, and was attended with disastrous consequences, solely from the confined and unwholesome nature of the air.

mended,—viz. bathing the eyes frequently with cold water. Though the effect of this simple remedy may for a time be hardly perceptible, yet, if duly persevered in, I can vouch for its producing the happiest results. So long as there is no actual disease of the eyes, only cold water should be used; and this, applied in the gentlest manner, will soon become sufficiently tepid for all the ends of utility and comfort.

These several methods are of course referable only to cases of weakness, &c. brought on by fatigue and over-exertion. But where no such causes can be assigned for imperfection of sight and pain in the organ, advice ought to be immediately sought; and on no account should any remedies be applied but under the direction of an experienced oculist.*

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* As many persons, however, especially in the country, may not have an opportunity of consulting an oculist, the collection of valuable prescriptions in Latin and English, given by the Author in his Treatise, may be advantageously referred to: among them are several by the most eminent Continental oculists.

The kind and degree of light in which an occupation is carried on, deserves some notice.

Whatever be the nature of the occupation, an equal degree of light should, if possible, be attained, and a happy medium observed —there should neither be too much nor too little, both being destructive to the eyes. Some, however, seem to think that nothing can affect their sight: hence we find such persons, as a matter of choice, working opposite a wall white enough to reflect powerfully the sun's rays; never considering that this foolish conduct cannot fail to weaken their vision. I have, indeed, frequently known this to be the cause of obstinate and dangerous inflammations, which, even after being cured, left the eyes still so weak as to be unfit for their accustomed duties.

A good and equal light being procured, the next remark I have to make is, that it is highly conducive to the comfort and durability of the eye, to vary frequently the position in which any employment is carried on; this being a very effectual way of preventing too great an influx of humours to the head. For example, the student and man of letters should be furnished with a high desk, at which he should stand to read or write, alternately with sitting. This, simple as it seems, if once fairly tried, would, I am confident, so strongly commend itself by its beneficial influence, not only on the sight, but on the general health, that they would not easily be induced to abandon the custom. To their constant habit of sitting, and seldom changing their position, there can be no reasonable doubt that very many of the complaints peculiar to literary men are owing.

That the colour of the eyes should affect their strength may seem strange; yet that such is the case need not at this time of day be proved; and those whose eyes are brown or dark-coloured, should be informed that they are weaker, and more susceptible of injury from various causes, than grey or blue eyes. Light-blue eyes are, *cæteris* *paribus*, generally the most powerful; and next to these are grey. The lighter the iris, the greater and longer continued is the degree of exertion the eye can sustain.

Within these few years past, screens and shades against the light have come very much into vogue for weak eyes; but I may observe that such artificial defences are only serviceable and proper for those whose eyes are very prominent, and who have scanty eyelashes and eyebrows. To such as, from this cause, need some protection for their eyes, a green silk shade is the simplest as well as the best contrivance that can be used.*

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* It is well known that, during the late war, our army in Egypt suffered severely from ophthalmia; and one thing that tended much to aggravate the disease, which was primarily caused by the action of the sun upon the arid sands, was, in my opinion, the form of the soldiers' caps: these had a very small peak in front, which was made of polished black leather, instead of that material simply tanned; and thus, by its smallness and shining, insufficiently shaded their eyes, at the same time causing a powerful reflection of the light on their visual organs.

Reading by moonlight, or gazing steadfastly on the moon for a considerable length of time, is a common practice with many young people, but one which cannot be too strongly censured. Even total loss of sight has sometimes been the consequence of astronomers pursuing their observations of the

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In fact, polished black leather is at all times injurious for caps or other coverings for the head; and what can be worse than the black-leather-topped caps worn by military officers, which, besides attracting the sun, and being made to fit so close to the head, are also highly objectionable on account of their weight? When serving at the Royal Naval Hospital at Haslar, I saw much of ophthalmia; and the circumstance has again recurred to me, from the fact that the Belgic troops were lately suffering very generally from that disease; yet, what is surely very remarkable, it has not appeared among civilians. May not this be partly explained as above? viz. from the want of a sufficient protection to the soldiers' eyes, arising from the smallness of the visor or peak of their caps. While on this subject, I may add, that the ladies' bonnets now in fashion, from having such small fronts, and being thrown so far back off the face, cannot but be injurious to the sight; and I have myself frequently remarked the effect produced on my own eyes by wearing a hat with a narrower brim than usual. These things deserve consideration.

moon for too long continued a period, without sufficient intervals of repose; and in all cases the sight is more or less dimmed and weakened by exposure to such influence.*

Some remarks on the care and use of the sight from infancy to age, may with propriety be made here.

In order to see well, it is necessary to begin in infancy to take care of the eyes. Many children have their sight permanently weakened by the carelessness of nurses, in exposing them soon after birth to a strong light, or to the bright glare of a fire, &c. These cautions cannot, therefore, be too strongly impressed on nurses and servants by those who regard the welfare of their offspring.

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* It may not be amiss here to caution naval officers, in their desire for the promotion of science and the effective performance of their arduous duties, against too frequent and long-continued straining of their sight by looking through powerful glasses at the moon and other celestial objects: many have in this way so seriously injured their vision as greatly to have prejudiced their usefulness to their country; and thus, from mere incautiousness in this respect, have frustrated the object upon which they were most intent, and for which they would cheerfully have sacrificed their lives.

The eyes of infants should be gradually accustomed to exercise themselves in scrutinising distant objects ; but this should be done in the most careful manner, without inducing them to strain their tender sight on such things as are too remote or dazzling for them to see without causing too forcible a contraction of their immature organs, which may lay the foundation of permanent and irremediable debility throughout life.

If these precautions are duly taken in infancy, and a proper regard be had in the use of the vision during youth, by not overstraining it by excessive reading at night, or by needle-work too long continued by candle-light, or any other practice likely to be detrimental, then even to old age the eyes will sustain a great deal of labour without injury; and thus one of the most annoying of decaying nature's infirmities be kept at bay, perhaps even till the hour of dissolution.

There are, of course, certain periods in which eyes of all ages, and of whatever degree of strength or weakness, are more capable of undergoing exertion than at others; and of such periods doubtless the chief is the morning, when the body, being refreshed and invigorated by repose, is prepared for exertion; but excess of sleep is as injurious to the visual as to the mental faculties,* and *est modus in rebus* is just as true of sleep as of food, drink, or any other of the bodily appetites. Yet, as I have before intimated, I by no means recommend close application of the sight in a glare of light immediately on rising; for it may be laid down as an axiom, that all violent and sudden contrasts are baneful to the eyes. Hence, when carried to the extreme, complete deprivation of sight has not unfrequently ensued; of which classical history furnishes numerous instances. To notice only two: Dionysius of Sicily, deservedly called the Tyrant, taxed his own ingenuity and that of those about him, to devise continually some new method of tormenting his victims; and among those which gave the greatest satisfaction to this monster in human shape, was that of confining his wretched captives in dungeons of the deepest darkness, till their sight was almost lost from being unused, and then suddenly having them brought forth into the broad light of the meridian sun; the consequence of which, as may readily be supposed, was excruciating agony, followed by total blindness.

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* Vide Mr. Abernethy's Surgical Observations; Dr. James Johnson, Dr. Wilson Phillip, &c. on Indigestion.

Equally barbarous, though perhaps admitting of some palliation, when it is considered how formidable an enemy to Africa their prisoner had been, was the treatment of Regulus by the Carthaginians: having cut off his eyelids, they exposed him, in this deplorable condition, to the direct rays of a tropical sun, by which he was very soon blinded.

But to return to my directions as to the best time for demanding unusual activity from the eyes: I remark, in the next place, that it will be well, whenever it can be accomplished, to give them rest for a while after eating, especially if our occupation oblige us to sit. The bad effects of an opposite line of conduct may be daily seen in the red faces, livid lips, and bloodshot eyes of those who either think intensely, or strain the sight soon after meals.*

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* A singular proof of this occurred in Lord C., a patient of mine, who being extremely fond of the Opera, was in the habit of going thither immediately after dinner: on such occasions his lordship was always very deaf, and affected with dimness of sight, for some time after entering the house. He and his friends were greatly at a loss to account for so singular a phenomenon, especially as the nobleman in question was very temperate. The solution of the problem, however, is not difficult. The determination of blood to the head, occasioned by the increased action of the heart and arteries, produced a pressure upon the auditory and optic nerves, by which their functions were impeded: after remaining quiet for a short time, however, the blood descended to the extremities, and consequently his hearing and sight returned.—Some information on the impropriety of either bodily or mental exertion directly after dinner, will be found in the chapter on the causes of disease, in my Essay on the Deaf and Dumb.

Again, after all employments that tend to inflame the passions, as pleading, preaching, lecturing, debating, &c., rest to the sight is absolutely essential to its preservation to old age; for the blood being more heated than usual, and flowing to the head in excess, unfits the eyes for a time for exertion; and will, if persevered in, produce the most painful consequences, of which I might enumerate many cases, in every profession exposed to such influences.

The practice of turning the back towards the light* for the purpose of seeing better to read or work, though frequently adopted by many persons, is extremely pernicious, the rays of light being too directly reflected; and in proportion as the paper or other object is whiter, the greater will be the injury.

I would here advise a plan which I have

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* In one instance, however, this practice may be adopted: when one eye is affected and is unsightly, if the person will take the precaution to sit with his back to the light while in company, the defect will not be noticed.

myself found to be of signal benefit both to the mind and the body, namely, that where it is necessary to employ the faculties in the evening in reading or writing, the latter should always be preferred, as being less exertion to the eyes, and more likely to be done effectually than reading.

Although what follows may perhaps be considered as belonging more strictly to the chapter on the treatment of diseases of the eye, yet, as these remarks refer only to cases in which, for the most part, professional assistance is not essential, they may, without impropriety, be introduced at this place.

Foreign bodies are often forced into the eye by various causes, such as a gust of wind, mending a pen, &c. &c.; and the method taken to remove them is generally wholly unsuited to that end. The eyelids are first rubbed with the hand, which always produces unpleasant sensations, and not unfrequently inflammation, there being danger of forcing the offending substance into the coats of the eye, whence it cannot, without considerable difficulty, be removed. On the contrary, let the head be leant forward, and the upper eyelid raised by the person suffering, who will be more gentle than another can be; and by this means he will commonly succeed in expelling it. The natural consequence of raising the eyelid, and retaining it in that position, is a flow of tears, which bring with them the intruding body, or carry it towards the canthus of the eye next the nose, whence it may easily be removed. Should this, however, prove ineffectual, the finger may be gently passed over the eyelid, towards the nose, a few times, which seldom fails to cause the substance to descend to the lachrymal glands, and thus be dislodged.

But should he still be unsuccessful, then it will be advisable to let another person introduce, between the eyelid and the ball, a small hair-pencil dipped in cream, beginning at the outer corner, and proceeding towards the nose, which usually effects the desired intention. Further than this I would warn unprofessional individuals from going; as a serious lasting injury may be done to so delicate an organ before they are aware of it, and cause much painful reflection on themselves afterwards.

As connected with the care of the eyes, what I am about to mention may perhaps properly be introduced here. It has lately become much the practice in this country to *hire* both single and double opera-glasses at the theatres; and in doing so, it behoves persons to be particularly careful. No organ is more sensitive than the eye, or more readily becomes infected; and should the smallest particle of purulent matter from the eye of an individual afflicted with ophthalmia adhere to a borrowed glass, and come in contact with a healthy eye, the disease will almost invariably be communicated: in the same manner as a foul comb, used after a person having tinea capitis, induces the disease, and as many other diseases are communicated by touching the vestments, &c. of those affected with them.

I therefore earnestly advise my readers either to have a glass of their own, or to be extremely particular in using one after another person.

A few remarks on Artificial Eyes* may perhaps not be uninteresting to the reader; especially when he is informed, that there is no other mode yet known of treating confirmed hydrophthalmia, or dropsy of the eye and its appendages, when occurring in adults, as well as cancer of the eye, than by extirpating the diseased eye, and inserting an artificial one. Formerly, when the eye and eyelids had been destroyed, or removed on account of disease, a painted imitation of them was sometimes applied over the orbit, and retained in its position by a steel spring that went round the temple to the opposite side of the head. But by an artificial eye is now understood a hollow piece of enamel, painted so as to resemble the natural eye, and to be inserted behind the eyelids.

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* Signor Vorley, of Florence, was the original inventor of the artificial eye as now worn.

They are of course variously made by different persons; some employing only enamel, and others gold and enamel, &c. It is unnecessary to enter into a detail of the manner in which they ought to be constructed, so as to occasion as little inconvenience as possible to the wearer: but there is one observation of so much importance that I cannot omit it, and that is, the absolute necessity of the most rigid cleanliness. For this purpose the eye ought to be removed two or three times a-day, and freed from the mucus adhering to it, the eyelids and orbit being at the same time bathed with lukewarm milk and water; and as it not unfrequently happens that there is considerable relaxation of the parts, the use of an astringent lotion may often be necessary.

I now come to the second part of this chapter, in which I propose briefly to give some general advice on the choice and use of Spectacles.

Most persons begin to feel the necessity for some assistance to their eyes in reading and working after the age or thirty or thirty-five; though, even the commencement and progress of the deterioration of the eyes vary according to the degree of health the individual has enjoyed, their original formation, the use that has been made, and the care that has been taken of them, &c.; so that some persons have as much occasion for spectacles at twenty-five as others have at fifty; and others, on the contrary, have as good sight at fifty as they had at twenty-five. Still, the average time at which glasses are needed for reading may be said to be from thirty-five to forty-five. After this latter period of life, the power of adjustment possessed by the eye in youth fails; and those who continue to perceive distant objects clearly, are unable to see plainly those which are near; and the man who can, unfatigued, read the smallest print without glasses, cannot distinguish any thing accurately at the distance of ten yards.

His late Majesty George the Fourth was always particularly careful of his eyes: and it is by no means improbable, that the afflictive blindness of his revered father, during several of the closing years of his life, was often present to his mind, and was a main cause of his care in this respect. The spectacles he used for viewing distant objects were No. 6; for nearer objects No. 2; but it is very singular that for reading he wore only preservers of 36 inches focus.

Among the many vulgar errors that are daily injuring those who cherish them, few have done more mischief to eyes than the notion that all persons of the same age require glasses of the same focus. Nothing can be more absurd: as well might the same remedies be applied indiscriminately to all diseases, provided the ages of the sufferers but tally!

The most general, and probably the best direction which can be given to those who feel that glasses are necessary to enable them to use their eyes with comfort to themselves and advantage to their occupation, whatever that may be, is to make choice of such as represent objects nearest to their natural state; for, to be exactly suitable to the eye, spectacles ought neither to magnify nor minify, but should enable us to read or work without creating any straining or unnatural exercise of the pupil.

The great design of spectacles is to give the eyes of the wearer ease; and although this is also attended by increased power of application, yet no glasses can be said to be properly accommodated to the sight of the individual which do not, with additional capability, also procure rest and comfort to the eyes. If they weary them, we may conclude, either that we have no occasion for any, or that those we have are improper for us, or defectively made.

Glasses are of two kinds—*convex* and *concave:* convex glasses are for the use of those who have what is commonly called an old, or long sight, and are unable to read or see small objects near them; concave glasses are for the use of those who are short-sighted, to enable them to see distinctly objects at the same distance at which they were able to perceive them before they became short-sighted.*

" If the humours of the eye, through age or weakness, have shrunk or decayed, the cornea will then be too flat, and the rays not being sufficiently bent or refracted, arrive at the retina before they are united in a focus, and would meet, if not intercepted, in some place behind it. They, therefore, (unless influenced by artificial means,) do not make an impression sufficiently correct and forcible, but form an indistinct picture on the bottom of the eye, and exhibit the object in a confused and imperfect manner. This defect of the eye is therefore remedied by a double-convex lens, such as the common spectacle-glasses, which, by causing the rays to converge sooner than they otherwise would, afford that aid to this defect of nature which the circumstances of the case may require, the convexity of the glass being always proportioned to the deficiency in vision.

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* " When the eye (says Dr. Young) is possessed of too great refractive power for the distinct perception of distant objects, the pupil is generally large, so that the confusion of the image is somewhat lessened by partially closing the eyelids; and from this habit an eye so formed is called myopic. In such cases, by the help of a concave lens, the divergence of the rays of light may be increased, and a virtual image may be formed, at a distance, so much smaller than that of the object as to afford perfect vision. For a long-sighted or presbyopic eye, on the contrary, a convex lens is required, in order to obtain a virtual image at a greater distance than the object; and it often happens that the rays must be made not only to diverge less than before, but even to converge towards a focus behind such an eye, in order to make its vision distinct. Presbyopic persons have in general a small pupil, and therefore seldom acquire the habit of covering any part of it with their eyelids."

" If, on the contrary, the cornea is too convex, the rays will unite in a focus before their arrival at the retina, and the image will also be indistinct. This defect is remedied by concave glasses, which cause the rays to diverge; and consequently, by being properly adapted to the case, will enable the eye to form the image in its proper place."*

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* Chitty's Practical Treatise on Medical Jurisprudence.

By the aid of convex glasses of 36 or 30 inches focus, persons whose sight is beginning to be unequal to read small print, or to work, without fatiguing and paining their eyes, will be enabled to do either; and, if properly chosen, will tend materially, by the ease and comfort they afford, to preserve the sight: hence their name of *preservers,* which, however, is a term as applicable to all the various gradations of glasses. The length of time that will elapse before it may be necessary to change these first spectacles, must depend upon the same circumstances which I have mentioned as creating the necessity for using them at all. However, it may be said that they will commonly serve for reading in the day-time about six or seven years.

As soon as the eye begins to do little better with the glasses used than without them, it is time to change them for more powerful magnifiers, and the second sight, or 30 inches focus, are necessary; though these should not be too hastily adopted by those who wish to preserve their sight unimpaired to old age; but they should be content to use them as sparingly as possible—only when unavoidable. Many have worn out their sight prematurely by using spectacles of too great a magnifying power, or of improper materials and faulty workmanship, to which their eyes have soon become accustomed; but they speedily exhausted the resources of art, and before death have become totally blind.

Those who are about to commence wearing glasses, as they cannot know what will suit their eyes, will do well to borrow a set of glasses, consisting of spectacles of regular gradations of power, and try at home for a few days which suit them best: they should make the experiment by day-light and candle-light, in that posture of the body in which they will be most used.

Almost all persons, on first wearing spectacles, if they keep them on for a few hours, complain of fatigue and uneasy sensations in their eyes; and this, even though they have been judiciously chosen, and when they were needful. Such weariness will be most felt by candle-light, and is caused, no doubt, by the eyes, for some time before resorting to glasses, having been tasked beyond their ability; and not, as is commonly supposed, by the artificial light, though that probably contributes to it.

Those whose avocations or amusements render the assistance of magnifiers necessary, ought to bear in mind, that the lower the degree of magnifying power possessed by their glasses, the less the eye will be fatigued by them, the less constrained the position of the body in using them, and the larger as well as more uniformly distinct the field of view embraced by them. Where only a moderate magnifying power is required, I would recommend, instead of a single magnifier, the use of spectacles of nine inches focus, which will enable the eye to be directed to minute objects without weariness for a longer time than if an eye-glass only be used, as well as be of material benefit in preserving one of the eyes from becoming injured by being constantly unemployed.

The glasses called *compound magnifiers,* consisting of two plano-convexes with their plane sides outwards, as they have a large and distinct field of vision, are very agreeable and useful to some persons. I believe it is known only to very few how long ago this peculiar construction of an eye-glass has been invented; but I find it stated in the Philosophical Transactions for 1688 (vol. iii. p. 842), that one Eustachio Divini made a microscope with two plano-convex glasses so placed that they touch in the middle of their convex surface; and the writer says that the instrument has the peculiarity of shewing objects flat, not crooked; although, he adds, "it takes in much, yet magnifieth extraordinarily."

Short-sighted people, as I have mentioned above, require *concave* glasses. The late Mr. Jesse Ramsden used to make the first number of his concaves equivalent to a convex of 24 inches focus, (that is, he joined a convex of this focal length to a No. 1 concave); the combination of which forms a plane, through which objects appear neither magnified nor diminished, but just the natural size. This is now the common practice of opticians.

The use of spectacles is every way preferable for short-sighted persons to single eye-glasses; a strong confirmation of the truth of which may be found in the fact that Mr. George Adams, a late highly celebrated optician, asserted that he did not recollect an instance of a short-sighted person who had occasion to increase the depth of his glasses, if he began with spectacles: but, on the other hand, he knew many cases where only one eye had been used, in which the individuals had been obliged repeatedly to change their glasses for concaves of higher power. Indeed, the advantage of a pair of spectacles over an eye-glass is very evident, from the circumstance that all objects are much brighter when seen with both eyes than when looked at with only one.

Little can be said in the way of advice as to the choice of spectacles for those who are short-sighted; the defect being totally unconnected with age, and making no regular progress by which an optician might be guided in his recommendation of one focus rather than another. It rests entirely with the persons who feel their need of assistance; but I would strenuously advise all such to be satisfied with glasses as slightly concave as possible: by which I mean, that they should employ no higher power than is necessary to enable them to see objects distinctly at from forty to fifty feet distance. This will be found amply sufficient for all ordinary purposes; and when it is desirable, on any extraordinary occasion, to increase for a time this power, it may be done with pleasure and without injury.

One remark I deem it important to make here, viz. that most persons wear spectacles that are much too small. This arises in some instances from mere inconsideration; but in others from a willing sacrifice of comfort and utility to a supposed neatness and elegance of appearance. Much injury is done to the eyes by the use of glasses not sufficiently large to cover the circle of the orbit; the wearer being obliged to look against the frame as well as both above and below it. In this respect the large old-fashioned round spectacles worn by our forefathers were certainly preferable to the small oval ones now so much in vogue. A good deal depends, too, on the way in which glasses are put on: care should be taken never to allow them to press against the eyelashes, as serious mischief may thereby be done to the eyes.

Near-sightedness remains almost the same through life; and few who have chosen their first concaves judiciously have occasion to change them even in old age, the same glass continuing to give the very same degree of help which it did in early manhood.

To see very distant objects, many persons are in the habit of looking through a concave eye-glass placed obliquely; but a small opera-glass, from its having an adjustable focus, though it magnify only twice, will be far better than a single concave, in consequence of the facility with which it can be adapted to various distances.

It is perhaps hardly worth while to notice a mistaken notion in respect to short-sighted persons, viz. that their sight is stronger and better to advanced age than the common sight: nothing can be more erroneous than such an idea.

The science of optics seems to have gained ground in this country, in proportion as acoustics has been neglected; for, perhaps, in no part of Europe have spectacles, reading-glasses, &c. been more correctly and better made:* in proof of which it may be stated, that most foreigners who require glasses are said to procure them when in England. On the other hand, truth compels me to add, that while we make the best glasses, we also make many of the very worst; so that spectacles formed of common window-glass, polished only on one side, are hawked about at low prices, by which the eyes of the poorer classes are frequently more injured than in any other way.

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* The best spectacles are undoubtedly the Brazilian pebbles: they are cooler to the eyes, besides not being so liable to be scratched or broken; and, where expense is not an object, they are preferable to all others. Persons

For those who have been operated upon for cataract,* and afterwards require cata-

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cannot be too cautious of whom they purchase spectacles; for it is a fact that they are to be bought wholesale at little more than *one shilling* per dozen; and the use of such inferior articles cannot be too much reprobated.

* There are three modes of performing the operation for cataract, and likewise three ways of treating it without operating; the latter are the antiphlogistic, the stimulant, and the counter-irritant, each of which ought to be fairly tried; and it is only when unsuccessful, that recourse should be had to the knife. In confirmed cataract of several years' standing, nothing can be done but by an operation; and when the patient is old and feeble, its success is problematical. Incipient cataract, however, like incipient deafness, may be cured without an operation; but when neglected until it has become structural,

ract-glasses, the best are the double-convex, varying in power from 2 to 5 inches focus.

It will probably be expected that I should say what I think of the amber spectacles.

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there is, as in other chronic diseases, little relief to be expected. There are some who advise that a cataract when forming should be let alone till mature; on the contrary I think that the sooner it can be dissipated the better; and further, that the earlier this is attempted, the greater is the probability of cure. For this purpose I have found no means so efficacious as applying a solution of the potassa cum calce to the affected organ, and combining with this a course of antiphlogistic and constitutional treatment. I wish it to be distinctly understood, that I speak only of incipient cataract; of the cure of several cases of which, by these means, an account will be found in my Treatise on the Eye; and, as facts are better than theories, and examples more valuable than precepts, I have much satisfaction in referring the reader to these cases. With regard to an operation, where only one eye is affected it ought not to be attempted, since the sound eye is thereby frequently injured, from inflammation supervening. Neglect of the disease in its early stage, and maltreatment afterwards, are commonly the causes which render operations necessary; and were diseases of the eye generally taken in time, I am convinced that they are as curable as diseases of the ear, or those of any other organs of the body.

They have been recommended by several oculists, and my patronage has been solicited for them. But surely those gentlemen who have sanctioned them cannot have remembered that amber is comparatively a soft substance, consequently very liable to become scratched, and that the polish is easily worn off. They are also much more expensive than even pebbles, and, as it appears to me, possess no advantage corresponding with their cost. For these reasons I entirely differ from those who have thought them preferable to pebbles or glass.*

I have not deemed it necessary to notice *strabismus*, or squinting, among diseases of the eye, the cure for it being of a purely mechanical nature. I have myself lately completed an invention for this purpose, which I have found to answer better than any other contrivance I have hitherto seen; viz. a pair of spectacle-frames, with imperforated sides, and fitted with convex horn having a small aperture in front only large enough to admit light to the centre of the pupil; so that the squinter, if he wishes to see at all, is obliged to accustom himself to look straight forward.

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* Mr. Dollond, Optician to his Majesty, and Fellow of the Royal Society, informs me that he considers amber a very improper material for spectacles, on account of its colour, its not being homogeneous, its liability to scratch, and its being also impossible to form it into a perfect lens.

To literary men, and others who have tried their eyes by much reading and writing, and to those who have been in the habit of using goggles for riding, driving, or walking, I would recommend the gauze spectacles, on account of their being much lighter; and as a protection against the wind, dust, and sun, they will be found very serviceable and agreeable. They have also the advantage of not affecting the head, as is frequently the case with glass, it being well known that many persons after using glasses for a few hours are troubled with headach; and that even looking through the windows of a carriage when travelling, produces the same effect in some cases.

When at Brighton last autumn, I was much annoyed with the glare of light from the white buildings and from the sea, and was in consequence desirous of obtaining a pair of gauze spectacles; but, after many inquiries, was unable to meet with any of a satisfactory description. Recollecting that the Tartars protect their sight, while travelling in winter, by means of a contrivance made of horse-hair, similar to our crape spectacles; and that the Esquimaux use what are called by travellers *snow eyes*;* I thought something of the same kind would be useful to, and desired by, those who might experience a similar inconvenience to what I had myself felt;—and I accordingly invented my Wire-gauze Spectacles, which differ from any that I have yet seen, in being made of very fine wire, covered over with a dull varnish, to preserve them from the action of the weather, which soon destroys those formed of linen gauze,—in being without sides, —and in being sufficiently convex in front to admit of the free motion of the eyelids. In the opinion of all who have tried them, they answer the purpose extremely well.*

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* Some account of these *snow-eyes* may not be uninteresting to the reader. They are constructed of a very light kind of wood, and rest on the bridge of the nose, in the same manner as our spectacles do. To admit of the free motion of the eyelids, they are excavated on both sides, and the excavations are stained black with soot. Opposite to each eye there is a long narrow slit corresponding with the fissures between the eyelids when they are almost closed, as in looking at objects under a strong light, &c. Blumenbach states that they serve also for a telescope; and that the Esquimaux use them for the purpose of looking at distant objects, and for preventing the annoyance caused by the reflected glare from the snow.

To enlarge more on the subject of optics would be unsuited to the main object of this work; and, therefore, for the information of those who are desirous of further pursuing it, I have much pleasure in giving below a short list of some of the works* I have found most useful in the course of my own study of the theory of vision as connected with spectacles, opera-glasses, telescopes, &c. &c.

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* On account of the great difficulty many short-sighted persons experience in procuring suitable spectacles, I have been induced to invent my Round Periscopic Glasses: they are somewhat similar to those of the late Dr. Wollaston.

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* Fabricius ab Aquapendente de Visione; De Dominis de Radiis Visûs et Lucis; Traver Nervus Opticus; Berkeley's Theory of Vision; Dr. Smith's Complete System of Optics; Dr. Herschel, Sir John Herschel, and Lord Brougham, on Light, &c.; Porterfield on the Eye and on Vision; Dr. Young's Lectures on Vision; Sir Isaac Newton on Optics; Sir David Brewster on Spectacles; Adams on Vision; the Philosophical Transactions of the Royal Society; &c. &c.

THE END.

LONDON:
PRINTED BY ROBSON, LEVEY, AND FRANKLYN,
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Ear have been cured or relieved, including several cases of deaf and dumb, as appears by the last Report, April 9th, 1835. As a further proof of its utility, and of its claims on public support, it may be mentioned that above 100 poor patients have received advice and assistance at the Dispensary in one day. From the great success which has crowned the exertions of the Institution, it is the intention of the Governors, as soon as the funds will admit, to enlarge the present, or erect a more commodious building, in order to receive deaf and dumb children into the establishment: for it is a fact of peculiar interest, that the infant deaf and dumb might often be cured, if subjected to an early examination and proper mode of treatment.

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OF

THE EAR,

By JOHN HARRISON CURTIS, Esq.

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AT THE

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